IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Michael Gavin Proctor et al.	Confirmation No.:	6206
Serial No.:	10/581,563	Group Art Unit:	1796
Filed:	June 2, 2006	Attorney Docket No.:	71049-012
Examiner:	Moore, Margaret G.		
For:	METHOD OF MAKING KAOLIN CONTAINING SILICONE RUBBER COMPOSITIONS		

BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Subsequent to the filing of the Notice of Appeal received by the U.S. Patent and Trademark Office on September 29, 2009, the Applicant now submits a Brief on Appeal in response to the rejection set forth in the Office Action dated June 29, 2009. Since the last day for filing a Brief on Appeal fell on a Sunday, this filing is timely made on the next business day which is not a Saturday, Sunday, or federal holiday.

Although the Applicant is not under final in the latest Office Action, in accordance with 37 CFR §41.31, the Applicant is entitled to this form of appellate procedure because the claims have been twice rejected. In accordance with the rules for Briefs on Appeal, no amendments are currently being filed. A single copy of this Appeal Brief is being submitted in accordance with 37 CFR §41.37. The Patent Office is authorized to charge or refund any fee deficiency or excess to Deposit Account No. 08-2789.

TABLE OF CONTENTS

I. Real Party in Interest

The real party in interest is Dow Corning Corporation to which an Assignment has been recorded in the United States Patent and Trademark Office at Reel/Frame: 019408/0786.

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II. Related Appeals and Interferences

There are no related Appeals or Interferences.

III. Status of Claims

Claims 1-9 and 11-20 are pending in the instant application. Each of claims 1-9 stand "Previously Presented." Therefore, each of these claims has been amended at least once from its original form. Claim 10 stands cancelled. Claims 11-20 were added to the original claims and also stand "Previously Presented." Claim 12 has been amended at least once from its original form after its addition.

Claims 1-9 and 11-20 stand rejected under 35 U.S.C. §103 as obvious over a combination of U.S. Pat. No. 6,737,458 to Woerner et al. in view of U.S. Pat. No. 4,677,141 to Cornelius et al. Each of claims 1-9 and 11-20 are on appeal. A set of these claims is found in the Claims Appendix.

IV. Status of Amendments

No amendments have been filed subsequent to the non-final rejection mailed June 29, 2009.

V. Summary of Claimed Subject Matter

A. Independent claims 1, 8, and 12

Independent claims 1, 8, and 12 are the three independent claims involved in this Appeal.

Claim 1 (with emphasis added) provides a treated kaolin containing silicone rubber composition that is (1) *free of* reinforcing fillers and that (2) *consists essentially of*:

(i) one or more polymers which have the formula:

$$R_2R^1SiO[(R_2SiO)_x(RViSiO)_y]\ SiR_2R^1$$

wherein each R is the same or different and is an alkyl group containing 1-6 carbon atoms, a phenyl group or a 3,3,3-trifluoroalkyl group, R^1 is a hydroxy group or an alkenyl group, x is an integer, y is zero or an integer, and x + y is between 700 and 10 000;

(ii) treated kaolin

(iii) a curing agent; and

(iv) optional additives selected from the group of one or more rheology modifiers, pigments, colouring agents, anti-adhesive agents, plasticizers, adhesion promoters, blowing agents, fire retardants and dessicants.

Claim 8 (with emphasis added) provides a method of making the aforementioned silicone rubber composition wherein the method *consists essentially of* the following steps:

(i) mixing the polymer(s) and treated kaolin under room temperature conditions,

(ii) adding a curing agent to the mixture in (i); and curing the mixture in (ii) at a temperature above room temperature by the application of heat.

Claim 12 (with emphasis added) provides a treated kaolin containing silicone rubber composition that is (1) *free of* reinforcing fillers and that (2) *consists essentially of*:

(i) 100 parts by weight of a polysiloxane gum comprising equal parts by weight of;

(a) a first polysiloxane gum, and

(b) a second polysiloxane gum different from the first polysiloxane gum,

wherein the first and second polysiloxane gums independently have the formula

$$R_2R^1SiO[(R_2SiO)_x(RViSiO)_y]SiR_2R^1$$

and wherein each R is the same or different and is an alkyl group containing 1-6 carbon atoms, a phenyl group or a 3,3,3-trifluoroalkyl group, R^1 is a hydroxy group or an alkenyl group, x is an integer, y is zero or an integer, and x + y is between 700 and 10 000;

(ii) calcined kaolin treated with an alkyoxysilane selected from the group consisting of methyltriethoxysilane, methyltrimethoxysilane, phenyltrimethoxysilane, vinyltriethoxysilane, vinyltrimethoxysilane, and combinations thereof;

(iii) a curing agent; and

(iv) optional additives selected from the group of one or more rheology modifiers, pigments, colouring agents, anti-adhesive agents, plasticizers, adhesion promoters, blowing agents, fire retardants and dessicants.

Pursuant to the requirements of 37 CFR §41.37, each element of independent claims 1, 8, and 12 and the corresponding support, as found in the specification as originally filed, is provided below in Table 1.

TABLE 1

Claim 1 Elements	Support For The Claim Element In The Specification As Originally Filed
A treated kaolin containing silicone rubber composition consisting essentially of:	Support for this element can at least be found in paragraph [0010]: Page 3, Line 20
(i) one or more polymers which have the formula $R_2R^1SiO[(R_2SiO)_X(RViSiO)_y]\ SiR_2R^1$ wherein each R is the same or different and is an alkyl group containing 1-6 carbon atoms, a phenyl group or a 3,3,3-trifluoroalkyl group, R^1 is a hydroxy group or an alkenyl group, x is an integer, y is zero or an integer, and x + y is between 700 and 10 000;	Support for this element can at least be found in paragraph [0011]: Page 3, Line 30 to Page 4, Line 6
(ii) treated kaolin	Support for this element can at least be found in paragraph [0014]: Page 4, Lines 23-24
(iii) a curing agent	Support for this element can at least be found in paragraph [0015]: Page 5, Line 8
(iv) optional additives selected from the group of one or more rheology modifiers, pigments, colouring agents, anti-adhesive agents, plasticizers, adhesion promoters, blowing agents, fire retardants and dessicants,	Support for this element can at least be found in paragraph [0010]: Page 3, Lines 25-27
which composition is free of reinforcing fillers.	Support for this element can at least be found in paragraph [0023]: Page 7, Lines 19-20

Claim 8 Elements	Support For The Claim Element In The Specification As Originally Filed
A method of making a treated kaolin containing silicone rubber composition consisting essentially of:	Support for this element can at least be found in paragraph [0010]: Page 3, Line 20
(i) one or more polymers which have the formula $R_2R^1SiO[(R_2SiO)_x(RViSiO)_y]\ SiR_2R^1$ wherein each R is the same or different and is an alkyl group containing 1-6 carbon atoms, a phenyl group or a 3,3,3-trifluoroalkyl group, R1 is a hydroxy group or an alkenyl group, x is an integer, y is zero or an integer, and x + y is between 700 and 10 000;	Support for this element can at least be found in paragraph [0011]: Page 3, Line 30 to Page 4, Line 6
(ii) treated kaolin	Support for this element can at least be found in paragraph [0014]: Page 4, Lines 23-24
(iii) a curing agent; and	Support for this element can at least be found in paragraph [0015]: Page 5, Line 8
optional additives selected from the group of one or more rheology modifiers, pigments, colouring agents, anti-adhesive agents, plasticizers, adhesion promoters, blowing agents, fire retardants and dessicants,	Support for this element can at least be found in paragraph [0010]: Page 3, Lines 25-27
which composition is free of reinforcing fillers	Support for this element can at least be found in paragraph [0023]: Page 7, Lines 16-21
which method consists essentially of the steps: mixing the polymer(s) and treated kaolin under room temperature conditions,	Support for this element can at least be found in paragraph [0023]: Page 7, Lines 16-21

(ii) adding a curing agent to the mixture in (i); and curing the mixture in (ii) at a temperature above room temperature by the application of heat.	Support for this element can at least be found in paragraph [0023]: Page 7, Lines 16-21

Claim 12 Elements	**Support For The Claim Element In The Specification As Originally Filed**
A treated kaolin containing silicone rubber composition consisting essentially of:	Support for this element can at least be found in paragraph [0010]: Page 3, Line 20
(i) 100 parts by weight of a polysiloxane gum comprising equal parts by weight of;	Support for this element can at least be found in paragraph [0035]: Page 10, Lines 15-22
(a) a first polysiloxane gum, and	Support for this element can at least be found in paragraph [0035]: Page 10, Lines 15-22
(b) a second polysiloxane gum different from the first polysiloxane gum, wherein the first and second polysiloxane gums independently have the formula $R_2R^1SiO[(R_2SiO)_x(RViSiO)_y]\ SiR_2R^1$ and wherein each R is the same or different and is an alkyl group containing 1-6 carbon atoms, a phenyl group or a 3,3,3-trifluoroalkyl group, R1 is a hydroxy group or an alkenyl group, x is an integer, y is zero or an integer, and x + y is between 700 and 10 000;	Support for this element can at least be found in paragraph [0035]: Page 10, Lines 15-22 and also in paragraph [0011]: Page 3, Line 30 to Page 4, Line 6
calcined kaolin treated with an alkyoxysilane selected from the group consisting of methyltriethoxysilane, methyltrimethoxysilane, phenyltrimethoxysilane, vinyltriethoxysilane, vinyltrimethoxysilane, and combinations thereof;	Support for this element can at least be found in paragraph [0014]: Page 4, Line 23 to Page 5, Line 6
(iii) a curing agent; and	Support for this element can at least be found in paragraph [0015]: Page 5, Line 8

(iv) optional additives selected from the group of one or more rheology modifiers, pigments, colouring agents, anti-adhesive agents, plasticizers, adhesion promoters, blowing agents, fire retardants and dessicants,	Support for this element can at least be found in paragraph [0010]: Page 3, Lines 25-27
which composition is free of reinforcing fillers.	Support for this element can at least be found in least paragraph [0023]: Page 7, Lines 16-21

VI. Grounds of Rejection to be Reviewed on Appeal

The Examiner has rejected claims 1-9 and 11-20 under 35 U.S.C. §103 as obvious over a combination of U.S. Pat. No. 6,737,458 to Woerner et al. in view of U.S. Pat. No. 4,677,141 to Cornelius et al. Each of these claims is on appeal. Accordingly, the Applicant respectfully requests review and reversal of the Examiner's position relative to the rejection of claims 1-9 and 11-20 under 35 U.S.C. §103 as obvious over a combination of U.S. Pat. No. 6,737,458 to Woerner et al. in view of U.S. Pat. No. 4,677,141 to Cornelius et al.

VII. Argument

A. Introduction

The Applicant respectfully asserts that clear error has been made by the Examiner in rejecting claims 1-9 and 11-20 under 35 U.S.C. §103 as obvious over a combination of U.S. Pat. No. 6,737,458 to Woerner et al. in view of U.S. Pat. No. 4,677,141 to Cornelius et al. One disagreement between the Applicant and the Examiner is whether the '458 and '141 patents *require* the use of reinforcing fillers and, thus, whether these patents can be appropriately combined to render the instant invention obvious. Another disagreement between the Applicant and the Examiner is whether any useful result would be achieved even if the teachings of these patents were appropriately combinable.

In rejecting the claims as obvious, the Applicant respectfully asserts that the Examiner has misinterpreted the art of record and has considered, but inappropriately rejected, the opinions of a person highly skilled in the art of silicone rubber development and formulation that were clearly set forth and established in the previously filed Declaration Under 37 CFR §1.132, attached hereto in the Evidence Appendix. The Applicant submits that when the art and the Declaration are properly considered *from the perspective of one of skill in the art*, then it is clear that the '458 and '141 patents cannot be appropriately combined, that the combined teachings still would not produce a useful result that is in any way the same or similar to the claimed invention, and thus that the pending claims are clearly non-obvious.

B. Required Use of Reinforcing Fillers

Throughout the file history of the instant application, and particularly in the previously filed Declaration, the Applicant has repeatedly interpreted and explained the disclosure of both the '458 and '141 patents for the Examiner *from the perspective of one of high skill in the art*. In

so doing, the Applicant has provided an appropriate and specific context for the Examiner in which to read and understand the silicone chemistry described in these prior art references. However, the Applicant and the Examiner continue to disagree as to what elements are required in the '458 and '141 patents.

Relative to understanding and applying the art of record, the Applicant respectfully emphasizes to the Examiner and the Board that determinations of obviousness hinge on what would be predictable to one of skill in the art (see MPEP §2141; See also *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007)). Consistent with the holding and reasoning in *KSR*, the Examiner must resolve the *Graham* inquiries and should include explicit findings on the record (I) as to how a person of ordinary skill would have understood prior art teachings, and/or (II) what a person of ordinary skill would have known or could have done with such teachings (see MPEP §2141). The Applicant also respectfully emphasizes that the ultimate determination of obviousness is a legal conclusion while the underlying *Graham* inquiries are factual (see MPEP §2141).

As applied to the instant case, the Examiner has considered, but inappropriately rejected, the factual statements in the Declaration that establish (I) the understanding of the prior art from the perspective of one of high skill in the art. The Examiner has also considered, but inappropriately rejected, the factual statements in the Declaration that establish (II) what that same person of skill in the art would have known or could have done with such teachings. If the Examiner has concluded or otherwise believes that the above-referenced factual statements are unreliable, the record is lacking clear reasoning for such a position. On page 3 of the most recent Office Action, the Examiner states that she does not agree with the factual statements of the Declaration. However, and as described in greater detail below, the Examiner does not provide

adequate reasoning as to why she chooses to rely on the prior art references as opposed to the sworn statements of an expert and person of high skill in the silicone arts.

The Declarant has sworn on the record, under penalty of perjury and potential invalidity of any issued patent, that both the '458 and '141 patents require the use of reinforcing fillers to form any sort of useable elastomer. Accordingly, the Applicant respectfully submits that it is improper for the Examiner to disregard such direct and clear statements by one of skill in the art that factually address issues (I) and (II) above and directly address the criterion set forth by the *KSR* Court. Quite simply, the Declarant has already resolved the fact based issue of what would be predictable and what is known in the art, yet the Examiner continues to not give appropriate weight to the Declarant's sworn statements and appears to remain concerned with the validity of these statements. The Applicant respectfully submits that in view of the clear Declaration, the issue of obviousness has been resolved.

The Applicant also respects and appreciates that, pursuant to MPEP §716, it is the responsibility of the primary examiner to personally review and decide whether declarations present sufficient facts to overcome pending rejections. In this case, the Applicant respectfully submits that the Examiner has not had the benefit of the clarified definition of the terminology "elastomer" set forth herein and thus has not been able to completely appreciate the Applicant's position and arguments. As a result, although the Examiner stated in the most recent Office action that she does not agree with the Declaration, the Examiner did not state reasons as to why she dismissed the Declarant's explanation of the terminology "elastomer," how this explanation fits with the prior art, and how this explanation relates to the present invention. Instead, the Examiner has merely concluded that she is favoring the disclosure of the '458 patent over the Declarant's sworn statements without setting forth adequate reasoning. Accordingly, the

Applicant respectfully submits that the Declarant's sworn statements, under penalty of perjury, should be given great weight and deference and should not be dismissed without more detailed reasoning presented in the record.

As an aside, if the Examiner is comfortable with the scope and breadth of the Declarant's comments but questions the validity or accuracy of the statements made in the Declaration, then there is an argument that such questions are not for the USPTO to consider. As set forth above, the ultimate determination of obviousness is a *legal* conclusion for consideration by the courts. Once the Declarant has sworn on the record to sufficient facts and to what is known in the art from his perspective, then the factual inquiry made by the USPTO should be complete. Respectfully, the sworn statements made by one of skill in the art should be regarded with such deference that these statements should settle any facts in dispute and allay any hesitation by the Examiner to rely on such a statement.

U.S. Pat. No. 6,737,458 to Woerner:

The '458 patent is directed towards a silicone composition which can be cross-linked to form an elastomer (see at least the Abstract and Claims). It is important for the Board to appreciate that the terminology "elastomer," as established in the Declaration, has specific meaning in the art of silicone development. It is this specific definition that influences whether one of skill in the art would "obviously" look to the '458 patent when forming the instant invention.

The instant claims refer a "silicone rubber." In paragraph [0002] of the specification, the inventors go further and clearly state that such silicone rubbers are often referred to as silicone elastomers. The Applicant respectfully submits that this dual naming system has been the source of confusion between the Applicant and the Examiner regarding the definition of "elastomer,"

the silicone rubber of the instant invention, and the relevance of the prior art.

In silicone chemistry, an "elastomer," i.e., a silicone rubber for purposes of the present invention, is not just any cured composition that is rubbery. As described in detail on page 5 of the Declaration, " silicone elastomers" are well recognized in the silicone arts as not only rubbery but also as things that have specific mechanical properties. This is one reason why such compositions are also known as silicone rubbers and not simply as generic elastomers. If a composition is rubbery but has poor mechanical properties, it is more accurately described as a coating or cross-linkable fluid and is not defined as a silicone elastomer or a silicone rubber.

As described in great detail in the previously filed Declaration, the '458 patent forms a silicone composition that includes 20-99 weight percent of vinyl functional polydimethylsiloxane (PDMS) and 1 to 80 weight percent of treated non-reinforcing fillers that are preferably talc and quartz. In so doing, the '458 patent refers to formation of silicone elastomers. However, the patentees of the '458 patent are not referring to elastomers in the sense of being synonyms with silicone rubbers but instead are simply referring to coatings or cross-linkable fluids that may happen to be rubbery. For this reason, the Declarant clarified the definition of silicone elastomer/rubber in the Declaration and described why the '458 patent does not form a useable silicone "elastomer" through use of the vinyl functional PDMS and the non-reinforcing fillers alone. Quite simply, use of these materials alone may form a rubbery composition but this composition does not have adequate mechanical strength. Without this mechanical strength, it is inaccurate in the silicone arts to characterize this composition as a silicone rubber as described above and in the Declaration. Accordingly, it is inaccurate and inappropriate for the Examiner to conclude that the '458 patent teaches formation of an elastomer that does not include reinforcing fillers. From the very simple and straightforward perspective and knowledge of those of skill in

the art, if the product formed in the '458 patent is to be properly categorized as a silicone elastomer (i.e., a silicone rubber), then it ***must*** include reinforcing fillers.

The Applicant appreciates the Examiner's position that the '458 patent uses the language "if" when addressing the inclusion of reinforcing fillers (see Col. 6, Lines 39-41) in the compositions. The Applicant also appreciates the Examiner's position that some of the working Examples of the '458 patent do not include reinforcing fillers and yet still form a product that the patentees refer to as an "elastomer." However, it is of utmost importance that the Examiner and the Board understand that, from the perspective of one of high skill in the silicone arts, the "elastomer" referred to in the '458 patent is not a traditional silicone elastomer as defined above and certainly is not the same as the silicone rubber positively recited in the claims. Because of this difference, those of skill in the art understand at least two things about the '458 patent no matter what the '458 patent defines as an "elastomer":

(1) If the patentees of the '458 patent are forming a silicone "elastomer" in the sense of forming a silicone rubber, then reinforcing fillers must be utilized to provide the vinyl functional PDMS with sufficient mechanical strength; and

(2) If the patentees of the '458 patent are not using reinforcing fillers, then the '458 patent is not forming a composition that can be referred to as a silicone elastomer or a silicone rubber as is known and widely recognized in the silicone arts.

If the '458 patent forms true elastomers/rubbers and thereby requires use of reinforcing fillers, then the '458 patent is inapplicable to the instant invention which is specifically claimed to be free of such fillers. Similarly, if the '458 patent does not form true elastomers/rubbers, then the '458 patent is not applicable to the instant invention because the instant invention is focused on the formation of silicone elastomers/rubbers. In any case, the '458 patent is not

applicable to this invention and certainly would not be obviously or predictably used by any one of skill in the silicone arts.

Admittedly, if the Applicant were traversing a §102 rejection, the nuances of the definition of "elastomer," as recognized in the art, would be of much less relevance. However, as explained by the Supreme Court in *KSR*, obviousness rejections are dependent on whether the claimed invention represents the predictable use of prior art elements, *as recognized by one of skill in the art*. This is in accordance with CAFC precedent that holds that the totality of the prior art must be considered and proceeding contrary to *accepted wisdom in the art* is evidence of non-obviousness (see MPEP §2145; See also *In re Hedges,* 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986)). Accordingly, the well recognized and traditionally accepted definition of "elastomer" (as a synonym of silicone rubber of the pending claims) is of central importance to determining what is predictable in this case and what is taught by the prior art references.

The Applicant respectfully submits to the Board that the instant specification and the Declaration clearly establish the well recognized and traditionally accepted definition of silicone "elastomer" as a silicone rubber and set forth the accepted wisdom in the art. More specifically, the Declaration establishes that reinforcing fillers are required to form silicone elastomers in the '458 patent according to the readily accepted definition of "elastomer." This means that no matter how the '458 patent is interpreted, if silicone elastomers/rubbers are being formed, then reinforcing fillers must be used. If the USPTO chooses to interpret that the '458 patent does not require reinforcing fillers, then the USPTO is also, by default, determining that the that '458 patent is not forming silicone elastomers/rubbers, from the perspective of one of skill in the art. In any case, the '458 patent should not be relied upon by the Examiner.

U.S. Pat. No. 4,677,141 to Cornelius:

The '141 patent provides a method of improving the heat stability of a pigmentable silicone elastomer composition. Notably, the silicone elastomer composition of the '141 patent specifically *requires* a polydiorganosiloxane gum, a reinforcing filler, and white clay (e.g. calcined kaolin) (see at least the Abstract and the Claims). The '141 patent relies on the reinforcing filler "to improve the physical strength" of the elastomers formed in this reference (See Col. 3, Line 6-7). Quite simply, the elastomers would not have the required mechanical strength without the inclusion of the reinforcing fillers. In fact, the Examples even evaluate how the reinforcing silica fillers improve the physical properties of the elastomers.

Furthermore, the '141 patent uses the white clay merely as a heat stability additive. The '141 patent does not explain or even acknowledge any reinforcing effect of the white clay whatsoever. Instead, the '141 patent admits that large loadings of white clay actually weaken the mechanical properties of silicone elastomers thereby increasing reliance on the reinforcing fillers to form a useable elastomer (see Col. 4, Lines 63-66).

Referring specifically to both the independent (e.g. independent claim 12) and the dependent claims in the subject application which specifically recite the particular treatment of the kaolin, the '141 patent describes the "treatment" of the white clay with vinyl-tris(beta-methoxyethoxy)silane (see Col. 4, Lines 49-50). As explained in detail in the Declaration, it is important to realize that this "treatment" is not analogous to the treatment of the fillers in the '458 patent or analogous to the treatment of the kaolin of the instant invention. The white clay of the '141 patent is "treated" to add vinyl functionality to the surface of the white clay so that it is reactive. The white clay is not treated to prevent its presence from causing degradation of the silicone polymer. Accordingly, there is no overlap or similarity with the treated kaolin of the

invention. In fact, the '141 patent teaches away from using white clay to increase mechanical properties and instead teaches reliance on reinforcing fillers.

As described in detail in the Declaration, it is certainly not predictable or obvious to rely on the '141 patent, or for that matter any patent that requires the use of reinforcing fillers, to arrive at the instant invention as claimed. Instead, relying on the '141 patent to arrive at the instant invention would be detrimental because the use of large loadings of white clay (e.g. calcined kaolin) weakens the mechanical properties of the elastomers and increases reliance on reinforcing fillers. Reinforcing fillers are expensive, have specific processing requirements, tend to cause crepe hardening, and are not easily used in single mixer applications. Thus, no one of skill in the silicone arts would look to a reference that *relies on* reinforcing fillers when trying to design a composition that is free of those same fillers.

It is also important for the Examiner and the Board to realize that the technology of the '141 patent was specifically avoided when developing the instant invention (see at least paragraph [0008] of the instant application). Said differently, the instant invention was absolutely intended to be an improvement of the '141 patent and its deficiencies, as realized by those of skill in the art. It is for this reason that the inventors originally cited the '141 patent to the USPTO in the Information Disclosure Statement filed on June 12, 2007 and described its deficiencies and the improvements made by the present invention in the instant specification. As described above, the use of reinforcing fillers is undesirable for many reasons including cost and processing considerations. The instant invention improves cost and processing considerations and greatly minimizes the deficiencies of the '141 patent by forming an entirely different type of composition that is *free of* reinforcing fillers. Thus, in addition to the Declaration, the specification of this application itself further evidences the clear intention of

those of skill in the art to avoid the '141 patent and specifically improve on its deficiencies. In view of this evidence, it is improper for the Examiner to suggest that those same people of skill in the art would ignore their own intentions and their own understanding of the '141 patent and obviously or predictably rely on this reference to form the invention.

Combination of the '458 Patent and the '141 Patent:

Purely for the sake of argument, it is also quite clear from the Declaration and from the specifications of the prior art references themselves that even if the '458 patent and the '141 patent were combined to form a silicone elastomer, this silicone elastomer would always include reinforcing fillers.

The Applicant makes this assertion fully realizing that the Examiner disagrees with such an argument. However, based on the Declaration which establishes the perspective of one of skill in the art, the Examiner cannot simply ignore the required usage of reinforcing fillers in the '141 patent (and the '458 patent) when combining references. The Declaration clearly and unmistakably explains to the Examiner that a useable silicone elastomer (i.e., silicone rubber) simply cannot be formed from the combination of the '458 patent and the '141 patent without the use of the reinforcing fillers. The Applicant also points out for the sake of argument that even if the teachings of the '458 patent and the '141 patent conflict relative to the required use of reinforcing fillers, the Examiner must weigh the power of each reference to suggest solutions *to one of ordinary skill in the art*, considering the degree to which one reference might accurately discredit another (emphasis added) (see MPEP §2143.01; See also *In re Young*, 927 F.2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991)). In this case, the Declarant has unmistakably and clearly sworn on the record, under penalty of perjury and potential invalidity of any issued patent, that reinforcing fillers are always required to form useable elastomers in both the '458 patent and the

'141 patent. Thus, the Examiner should give significant deference to the Declarant's statements relative to resolving any perceived conflict between the '458 patent and the '141 patent. The Declarant's sworn statements clearly demonstrate that reinforcing fillers are required in these two references and these statements should allay any hesitation on the part of the Examiner or the Board to conclude otherwise. For the aforementioned reasons, the Applicant respectfully submits that even if the '458 patent and the '141 patent were combined, the resulting product would not be the same as, or even an obvious variant of, the instant invention.

C. Conclusion

Based on the above summary and the correspondence of record, and especially in view of the Declaration that was previously filed, the Applicant respectfully requests review and reversal of the Examiner's position relative to the rejection of claims 1-9 and 11-20 under 35 U.S.C. §103 as obvious over a combination of U.S. Pat. No. 6,737,458 to Woerner et al. in view of U.S. Pat. No. 4,677,141 to Cornelius et al. The Applicant submits that the '458 and '141 patents each ***require*** use of reinforcing fillers and thus are not applicable to, or properly combinable to reject, the claims of the instant invention which specifically state that the claimed composition is free of reinforcing fillers. Moreover, even if such patents were combined, the product formed from such a combination would not be useful and still would not be the same as, or even an obvious variant of, the instant invention.

While it is believed that no further fees are presently due, the Commissioner is authorized to charge the Deposit Account No. 08-2789, in the name of Howard & Howard Attorneys PLLC for any fees or credit the account for any overpayment.

Respectfully submitted,

HOWARD & HOWARD ATTORNEYS PLLC

Date: November 30, 2009

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VIII. Claims Appendix

1. (Previously Presented) A treated kaolin containing silicone rubber composition consisting essentially of:

(i) one or more polymers which have the formula

$R_2R^1SiO[(R_2SiO)_x(RViSiO)_y]\ SiR_2R^1$

wherein each R is the same or different and is an alkyl group containing 1-6 carbon atoms, a phenyl group or a 3,3,3-trifluoroalkyl group, R^1 is a hydroxy group or an alkenyl group, x is an integer, y is zero or an integer, and x + y is between 700 and 10 000;

(ii) treated kaolin

(iii) a curing agent; and

(iv) optional additives selected from the group of one or more rheology modifiers, pigments, colouring agents, anti-adhesive agents, plasticizers, adhesion promoters, blowing agents, fire retardants and dessicants,

which composition is free of reinforcing fillers.

2. (Previously Presented) A composition according to Claim 1 characterized in that the polymer(s) comprise(s) a mixture of two polysiloxane gums having the formula $R_2ViSiO[(R_2SiO)_x(RViSiO)_y]SiR_2Vi$ and the formula $R_2ViSi(R_2SiO)_xSiR_2Vi$ wherein in each formula, R represents an alkyl group containing 1-6 carbon atoms; Vi represents the vinyl group; and x and y each have values of 500-1,000.

3. (Previously Presented) A composition according to Claim 1 characterized in that the kaolin comprises a kaolin treated with an alkoxysilane of the formula $R_{(4-n)}Si(OR)_n$ wherein n has

a value of 1-3; and R is an alkyl group, an aryl group, or an alkenyl group.

4. (Previously Presented) A composition according to Claim 3 characterized in that the alkoxysilane is a compound selected from the group consisting of methyltriethoxysilane, methyltrimethoxysilane, phenyltrimethoxysilane, vinyltriethoxysilane, and vinyltrimethoxysilane.

5. (Previously Presented) A composition according to Claim 1 characterised in that the composition comprises about equal amounts of the polymer(s) and the kaolin.

6. (Previously Presented) A composition according to Claim 1 characterised in that the curing agent is a peroxide selected from the group consisting of benzoyl peroxide, 2,4-dichlorobenzoyl peroxide, di-t-butyl peroxide, and dicumyl peroxide.

7. (Previously Presented) A composition in accordance with Claim 1 characterised in that the curing agent is an organohydrogensiloxane curing agent, and a platinum group metal hydrosilylation catalyst is added in an amount sufficient to cure the composition.

8. (Previously Presented) A method of making a treated kaolin containing silicone rubber composition consisting essentially of:

(i) one or more polymers which have the formula

$$R_2R^1SiO[(R_2SiO)_x(RViSiO)_y]SiR_2R^1$$

wherein each R is the same or different and is an alkyl group containing 1-6 carbon atoms, a phenyl group or a 3,3,3-trifluoroalkyl group, R^1 is a hydroxy group or an alkenyl group, x is an integer, y is zero or an integer, and x + y is between 700 and 10 000;

(ii) treated kaolin

(iii) a curing agent; and

(iv) optional additives selected from the group of one or more rheology modifiers, pigments, colouring agents, anti-adhesive agents, plasticizers, adhesion promoters, blowing agents, fire retardants and dessicants,

which composition is free of reinforcing fillers, and

which method consists essentially of the steps:

(i) mixing the polymer(s) and treated kaolin under room temperature conditions,

(ii) adding a curing agent to the mixture in (i); and curing the mixture in (ii) at a temperature above room temperature by the application of heat.

9. (Previously Presented) A method according to Claim 8 in which room temperature is normal ambient temperature of 20-25°C.

10. (Cancelled)

11. (Previously Presented) A composition according to Claim 1 characterised in that each R group is a methyl or ethyl group.

12. (Previously Presented) A treated kaolin containing silicone rubber composition consisting essentially of:

(i) 100 parts by weight of a polysiloxane gum comprising equal parts by weight of;

(a) a first polysiloxane gum, and

(b) a second polysiloxane gum different from the first polysiloxane gum,

wherein the first and second polysiloxane gums independently have the formula

$$R_2R^1SiO[(R_2SiO)_x(RViSiO)_y]SiR_2R^1$$

and wherein each R is the same or different and is an alkyl group containing 1-6 carbon atoms, a phenyl group or a 3,3,3-trifluoroalkyl group, R^1 is a hydroxy group or an alkenyl group, x is an integer, y is zero or an integer, and x + y is between 700 and 10 000;

(ii) calcined kaolin treated with an alkyoxysilane selected from the group consisting of methyltriethoxysilane, methyltrimethoxysilane, phenyltrimethoxysilane, vinyltriethoxysilane, vinyltrimethoxysilane, and combinations thereof;

(iii) a curing agent; and

(iv) optional additives selected from the group of one or more rheology modifiers, pigments, colouring agents, anti-adhesive agents, plasticizers, adhesion promoters, blowing agents, fire retardants and dessicants,

which composition is free of reinforcing fillers.

13. (Previously Presented) A composition according to Claim 12 characterized in that the first polysiloxane gum has the formula $R_2ViSiO[(R_2SiO)_x(RViSiO)_y]SiR_2Vi$ and the second polysiloxane gum has the formula $R_2ViSi(R_2SiO)_xSiR_2Vi$ wherein in each formula, R represents an alkyl group containing 1-6 carbon atoms; Vi represents the vinyl group; and x and y each have values of 500-1,000.

14. (Previously Presented) A composition according to Claim 13 characterised in that each R group is a methyl or ethyl group.

15. (Previously Presented) A composition according to Claim 14 characterised in that the curing agent is a peroxide selected from the group consisting of benzoyl peroxide, 2,4-dichlorobenzoyl peroxide, di-t-butyl peroxide, and dicumyl peroxide.

16. (Previously Presented) A composition in accordance with Claim 14 characterised in that the curing agent is an organohydrogensiloxane curing agent, and a platinum group metal hydrosilylation catalyst is added in an amount sufficient to cure the composition.

17. (Previously Presented) A composition according to Claim 13 characterised in that the curing agent is a peroxide selected from the group consisting of benzoyl peroxide, 2,4-dichlorobenzoyl peroxide, di-t-butyl peroxide, and dicumyl peroxide.

18. (Previously Presented) A composition in accordance with Claim 13 characterised in that the curing agent is an organohydrogensiloxane curing agent, and a platinum group metal hydrosilylation catalyst is added in an amount sufficient to cure the composition.

19. (Previously Presented) A composition according to Claim 12 characterised in that the curing agent is a peroxide selected from the group consisting of benzoyl peroxide, 2,4-dichlorobenzoyl peroxide, di-t-butyl peroxide, and dicumyl peroxide.

20. (Previously Presented) A composition in accordance with Claim 12 characterised in that the curing agent is an organohydrogensiloxane curing agent, and a platinum group metal hydrosilylation catalyst is added in an amount sufficient to cure the composition.

IX. Evidence Appendix

The Declaration Under 37 CFR §1.132 that was filed on April 27, 2009 and indicated as formally entered by the Examiner in the Office Action dated June 29, 2009 is attached on the following pages. The Declaration includes original page numbers and is not numbered in sequence with this Brief on Appeal.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Michael G. Proctor et al. Group Art Unit: 1796

Serial No.: 10/581,563 Examiner: Margaret G. Moore

Filed: June 2, 2006

For: METHOD OF MAKING KAOLIN CONTAINING SILICONE RUBBER COMPOSITIONS

Attorney Docket Number: 71,049-012

DECLARATION UNDER 37 C.F.R. § 1.132

Mail Stop RCE
Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

I, Michael G. Proctor, hereby state that:

1. I am a citizen of the United Kingdom.

2. I am currently employed as a Senior Product Steward and Silicone Rubber Development Chemist for Dow Corning Ltd. of Wales. I have worked in the field of silicone chemistry for 13 years and I have been employed by Dow Corning Ltd. since 1996. I earned a PhD in physical inorganic chemistry in 1988 at the University of Sussex in Brighton, UK.

3. I am the first named inventor of the pending application, Application Serial No. 10/581,563, and a person highly skilled in the art of silicone rubber development and formulation.

4. As a brief summary of silicone rubbers and fillers used therein, it is important to note that silicone rubbers are typically composed of three essential ingredients: (i) a silicone polymer, (ii) a curing (i.e., cross-linking) agent, and (iii) one or more fillers. Two different types of fillers are generally used in silicone rubbers and are defined as reinforcing or non-reinforcing fillers. Reinforcing fillers impart high strength to silicone rubbers and typically include fumed and precipitated silica. However, reinforcing fillers are relatively expensive and increase the cost of the silicone rubber for the purchaser. The reinforcing fillers are also typically treated with organosilanes, organosiloxanes, or organosilazanes in order to improve the physical and/or mechanical properties of the silicone rubbers, e.g. tensile strength and compression set. Non-reinforcing fillers, on the other hand, do not reinforce the silicone rubbers and are generally used to reduce the cost of the silicone rubbers. Typically, the non-reinforcing fillers include relatively inexpensive materials such as ground quartz, calcium carbonate, and diatomaceous earth.

5. The claimed invention of the '563 application is a treated kaolin containing silicone rubber composition and a method of making the composition. The silicone rubber composition includes a specific silicone polymer, treated kaolin, a curing agent, and optional additives. Importantly, the composition is *free of* reinforcing fillers. The goal in developing this invention was to form a silicone rubber composition that has similar physical properties and mechanical strength as a reinforced silicone rubber (i.e., a silicone rubber which uses the more expensive reinforcing fillers) but with less cost and greater ease of use. The treated kaolin is both cheaper and easier to use than reinforcing fillers and thus achieves the goal of this invention.

6. The kaolin of this invention is treated with silanes, silazanes, or short chain organopolysiloxane polymers to prevent an acidic surface of the untreated kaolin from causing degradation of the silicone polymer in the silicone rubber composition. However, this treated kaolin is not a reinforcing filler or a non-reinforcing filler. Instead, the treated kaolin is defined as a "semi-reinforcing filler," as set forth in paragraphs [0033] and [0034] of the application. The treated kaolin is defined as a "semi-reinforcing filler" because it increases the mechanical and physical properties of the silicone rubber composition to a level much greater than would be obtained with an equivalent amount of a non-reinforcing filler but to a lesser extent than would be obtained using an equivalent amount of a reinforcing filler.

By utilizing the treated kaolin instead of any type of filler, the invention avoids the need to follow a conventional production route to form a silicone rubber as outlined in paragraph [0030] of the application. In other words, the invention avoids the need to (1) make a silicone rubber base containing fumed silica as a reinforcing filler and then (2) make another composition including a secondary non-reinforcing or semi-reinforcing filler, thus greatly saving costs and production times. In addition, the invention avoids a need to apply heat during production of the silicone rubber base because silica-type reinforcing fillers need not be reacted with hydrophobing agents as would typically be required. Because the invention does not have to be heated, the invention can be made in a single mixer, thereby further decreasing production times, decreasing production costs, and maximizing production flexibility and efficiency. Further, the treated kaolin of the invention disperses much more easily in silicone rubbers than fumed silica thereby reducing the total mixing time required to produce a homogeneous product. Still further, the treated kaolin of the invention is inexpensive and thus can be used in greater amounts to precisely customize the silicone rubber composition to specific applications thereby increasing

marketability and usefulness. Even further, the treated kaolin of the invention has a much higher bulk density than fumed silica which eases handling and storage requirements of the silicone rubber composition.

7. I am aware of, have read, and understand the disclosure of U.S. Pat. No. 6,737,458 which is entitled "Silicone Compositions Having Improved Heat Stability."

8. I am also aware of, have read, and understand the disclosure of U.S. Pat. No. 4,677,141 which is entitled "Method of Improving Heat Stability of Pigmentable Silicone Elastomer."

9. As a result of my review of the '458 and '141 patents, and also as a result of my understanding from the perspective of one highly skilled in the art of silicone rubber development and formulation, it is clear that combining the '458 patent and the '141 patent would not produce the silicone rubber composition of the instant invention. This combination of references will not achieve the goal of forming a silicone rubber composition that has similar physical properties and mechanical strength to a reinforced silicone but with less cost and greater ease of use. In fact, this combination will produce results that are contrary to the goals achieved with the instant invention and will merely recreate the already known deficient products that are currently produced in the art.

10. **The '458 Patent**

Goals of the '458 Patent

As a result of my understanding of the '458 patent, it is apparent that the '458 patent provides a silicone elastomer that includes both reinforcing and non-reinforcing fillers and has improved heat stability. The '458 patent specifically notes that use of talc and other typical non-reinforcing fillers causes considerable weight loss in silicone compositions at temperatures

above 100°C due to cleavage of siloxane chains and catalysis of reactions that form cyclic, volatile siloxanes. Accordingly, in the '458 patent, a silicone elastomer is formed and includes 20-99 weight percent of vinyl functional polydimethylsiloxane (PDMS) and 1 to 80 weight percent of treated non-reinforcing fillers that are preferably talc and quartz. The non-reinforcing fillers are treated with nitrogen containing compounds to improve the heat stability of the silicone elastomer and minimize the aforementioned cleavage and weight loss.

Deficiencies of the '458 Patent

It is very important to realize that the '458 patent does not form a useable silicone elastomer through use of the vinyl functional PDMS and the non-reinforcing fillers alone. It is very well known and recognized in the silicone arts that a vinyl functional PDMS, by itself or simply mixed with non-reinforcing fillers, is elastomeric in a sense that it is rubbery but has such poor mechanical properties that it cannot be used to make useful articles. Accordingly, reinforcing fillers ***must*** be included in order for any sort of useable elastomer to be formed. Without reinforcing fillers, the product formed in the '458 patent would be better described as a coating or cross-linkable fluid and not as an elastomer. Thus, the '458 patent describes the inclusion of reinforcing fillers such as precipitated and pyrogenic silicic acid and their preferred inclusion to allow the elastomer to have sufficient mechanical strength to make it useful in practical applications. In sum, the reinforcing fillers ***must*** be included in the silicone elastomer of the '458 patent in order for any sort of useable article to be formed.

Furthermore, and as admitted to by the Examiner, the '458 patent does not disclose, teach, or suggest use of any treated kaolin whatsoever, let alone treated kaolin specifically as a semi-reinforcing filler. In fact, the treated kaolin of this invention cannot even be substituted for the non-reinforcing filler of the '458 patent because the treated kaolin is not a "non-reinforcing

filler." The treated kaolin is a "semi-reinforcing filler," as described above. It is well known and appreciated in the art of silicone rubbers that non-reinforcing fillers are not the same as semi-reinforcing fillers and thus cannot simply be used interchangeably. Said differently, it is well recognized in the art that the use of the terminology "non-reinforcing filler" implies that the fillers have *no* effect on improving mechanical properties of the compositions. That simply is not the case with this invention. The treated kaolin of the instant invention is used as a substitute for reinforcing fillers and increases the mechanical and physical properties of the silicone rubber compositions in which it is utilized thus allowing a silicone rubber to be formed with less cost and in less time. Accordingly, the '458 patent does not even include use of an analogous type filler of and should not be relied upon when trying to "reconstruct" the invention.

11. **The '141 Patent**

As a result of my understanding of the '141 patent, it is apparent that the '141 patent provides a method of improving the heat stability of a pigmentable silicone elastomer composition. Notably, the silicone elastomer composition specifically *requires* a polydiorganosiloxane gum, a reinforcing filler, and white clay. The '141 patent relies on the reinforcing fillers "to improve the physical strength" of the elastomer (See Col. 3, Line 6-7). Quite simply, the elastomer would not achieve the required mechanical strength without the inclusion of the reinforcing fillers.

In addition, the '141 patent uses the white clay merely as a heat stability additive. Notably, the '141 patent does not explain or even acknowledge any reinforcing effect of the white clay whatsoever. The white clay is used in amounts of from 1 to 150 parts by weight to 100 parts by weight of the polydiorganosiloxane gum. According to '141 white clay is detrimental to the mechanical properties of silicone compositions. Thus according to '141 the

large loading of white clay actually weakens the mechanical properties of the silicone elastomer thereby increasing the reliance on the reinforcing fillers to form a useable elastomer. Furthermore, the '141 patent describes the "treatment" of the white clay with vinyl-tris(beta-methoxyethoxy)silane (see Col. 4, Lines 49-50). However, it is important to realize that this "treatment" is not analogous to the treatment of the fillers in the '458 patent or analogous to the treatment of the kaolin of the instant invention. The white clay of the '141 patent is "treated" to add vinyl functionality to the surface of the white clay so that it is reactive. The white clay is not treated to prevent its presence from causing degradation of the silicone polymer. Accordingly, there is no overlap or similarity with the treated kaolin of the invention. In view of all of the dissimilarities and deficiencies described above, the '141 patent should not be relied upon when trying to reconstruct the invention.

12. **Relying on the '141 Patent Is Not Proper or Obvious**

As one of high skill in the art, it is my opinion that relying on the '141 patent, or for that matter any patent that requires the use of reinforcing fillers, to form the instant invention is certainly not predictable. Instead, relying on the '141 patent would be detrimental because of the fact that '141 actually teaches that the use of large loadings of white clay weakens the mechanical properties of the silicone elastomer composite thus increasing the reliance on reinforcing fillers. Reinforcing fillers are expensive, have specific processing requirements, tend to cause crepe hardening, and are not easily used in single mixer applications. Thus, no one of skill in the silicone arts would look to a reference that *relies on* reinforcing fillers when trying to design a composition that is free of those same fillers.

In fact, as set forth in paragraphs [0008] and [0037] of the application, the technology of the '141 patent was specifically avoided when developing the instant invention. Said

differently, the instant invention was explicitly intended to be an improvement of the '141 patent and its deficiencies. The '141 patent utilizes heat to cause a chemical reaction between a "treating agent" and the surface of the reinforcing filler. In addition, the '141 patent specifically requires the use of reinforcing fillers. This is precisely what was designed around and improved upon. As described above, the use of reinforcing fillers is undesirable for many reasons including cost and processing considerations. The instant invention improves cost and processing considerations and greatly minimizes the deficiencies of the '141 patent by forming an entirely different type of composition that is *free of* reinforcing fillers.

13. **Combining The '458 Patent and the '141 Patent Would Not Produce a Useful Result**

Even if the lessons from the '458 patent and the lessons from the '141 patent were combined to form a silicone composition, this "resultant" silicone composition would *always* include reinforcing fillers. A useable product simply could not be formed from these patents without the reinforcing fillers. Thus, the problems associated with a need to use heat, with a need to use multiple mixers, with costs and other processing considerations, and with ease of handling and ease of storage would not be solved. In fact, there would likely be no difference between this "resultant" silicone composition and the many commercial compositions that are currently available. Said differently, a silicone composition formed from this combination of references would merely represent the current commercial products with all of their limitations and deficiencies, would fail to offer any improvement over the prior art whatsoever, and certainly would not be representative of the instant invention.

14. **Conclusion**

As a result of my review of the '458 and '141 patents, and also as a result of my understanding from the perspective of one highly skilled in the art of silicone rubber development

and formulation, it is clear that combining the disclosure of the '458 patent and the disclosure of the '141 patent will not produce a useful result and will certainly not re-produce the instant invention. Quite simply, no matter how the '458 and '141 patents are combined, any silicone formed from therefrom will *necessarily* include reinforcing fillers. This alone negates the advantages of the instant invention. In addition, this combination will rely on the technology of the '141 patent which was expressly designed around due to its inconsistencies and disadvantages.

15. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information are believed to be true, and further that these statements were made with the knowledge that willful and false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or patent issued thereon.

Respectfully submitted,

Dated 24-04-09

M G Proctor

Michael Gavin Proctor

X. Related Proceedings Index

None.